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ABSTRACT

A Citizens Advisory Committee--a blue ribbon commission--reviewed graduate education in the Oregon State System of Higher Education, focusing on the priorities, needs, and resources of the state. With respect to employment and research needs of Oregon and the nation as justification for graduate programs in Oregon, conclusions include the following: graduate programs in the state system are helping to meet the research and employment needs of Oregon and the nation and federal funding of state system graduate programs has greatly contributed to the development and quality of programs needed in Oregon. Advanced degree programs have been selectively developed to capitalize upon the special strengths of the several institutions and to meet state needs. For example, graduate programs in teacher education have been developed in the three state colleges and the three universities. Basic assumptions that guide the Oregon State Board of Higher Education in its decisions regarding graduate programs and criteria for evaluating proposed new graduate programs are identified. Attention is also directed to: access by in-state and out-of-state residents to Oregon graduate programs, including those in private colleges; overlay and duplication of graduate study in state institutions; comparative costs of graduate progrms; and plans to adjust graduate programs to declining enrollments and resources. Appendices include a "Budget Note on Graduate Education" and information on: program duplication; actual and projected public school teaching staff in Oregon; agencies active in forecasting doctoral supply/demand projections; resident Oregon labor force; and graduate degrees awarded by state and private Oregon colleges. (SW)

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# Report on Graduate Education in Oregon Prepared by the Advisory Committee on Graduate Education

**MARCH 20, 1978**

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# REPORT ON GRADUATE EDUCATION IN OREGON

Prepared by
The Advisory Committee on Graduate Education
Appointed by the Oregon State Board of Higher Education

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March 20, 1978

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# Report on Graduate Education in Oregon

## I. Introduction

This report is submitted by the Citizens Committee appointed by the State Board of Higher Education to review graduate education in the Oregon State System of Higher Education.

The State Board asked the Committee to examine relevant information concerning graduate education and to report its views on the present status and future development of graduate education in the state of Oregon.

The Committee was asked to address itself particularly, but not exclusively, to the matters raised in the Budget Note on Graduate Education attached by a subcommittee of the Ways and Means Committee of the 1977 Oregon Legislative Assembly to the capital construction budget of the State System of Higher Education. This Budget Note directed that an examination be made of the priorities, needs, and resources of the state with respect to graduate programs in the State System of Higher Education and that a report on such study be made to the 1979 Legislative Assembly. (The complete Budget Note is appended to this report as Appendix A.)

The twelve members of the Citizens Committee appointed to make this study represent diverse areas of the state and a broad spectrum of occupations, including law, business, farming and ranching, forestry, education, journalism, medicine, and union leadership. The members of the Committee are all

community and state leaders. Several have been state Legislators. Others brought with them experience on the State Board of Education and other education committees. More than half the Committee has several advanced or professional degrees. It is an "outside" group, bringing a fresh viewpoint to the solution of the problems of graduate education. Committee members are listed in Appendix B.

For convenience in using this report, Conclusions and Recommendations follow the Introduction. Subsequent sections provide detailed discussion and documentation upon which these Conclusions and Recommendations are based.

## II. Limitations of this Report

The strengths the Committee brings to bear on evaluating graduate education in Oregon--freshness of viewpoint, lack of vested interest, absence of personal identification with professional concerns of graduate education--also limit this report. The brief time allotted the Committee to identify and study the issues restricted the depth of investigation. However, neither Board members nor staff have entreated the Committee to represent the Board's views on graduate education. While we feel that this report may lack some depth because of the time schedule, we maintain that it does not lack independence of viewpoint.

The tight timetable precluded detailed documentation for some viewpoints expressed.

## III. Conclusions and Recommendations

### A. Conclusions

Below are the findings and conclusions of the Committee organized to respond directly to the five items of the Legislative Budget Note.

a. "Employment and research needs of Oregon and the nation as justification for graduate programs in this state."

We find that:

1. Graduate programs in the State System of Higher Education are in fact helping to meet the research and employment needs of Oregon.

2. The outstanding success of State System graduate programs in obtaining federal funds for research indicates that these programs are meeting research and employment needs of the nation.

3. Federal funding of State System graduate programs has greatly contributed to the development and quality of programs needed in Oregon.

4. The Board has consistently made an effort to authorize graduate programs that meet the research and employment needs of the state, as the Board has been able to determine these needs.

5. There is no reliable method of determining with accuracy what the research and manpower needs of Oregon will be in the future.

6. Basic research is not adequately funded in State System institutions. This may have long-range adverse implications for the state and nation.

7. Meeting employment and research needs is not the sole justification for graduate programs.

8. The dependence of the universities on federal funding has aided research programs and has not prompted the universities to engage in programs that they would not otherwise select. Federal grants obtained have been consistent with the defined missions of the various institutions.

b. "Access by Oregonians and nonresidents to Oregon graduate programs, including those in independent colleges and universities."

We find that:

1. Differentiation between resident and nonresident graduate students has significance only at the time of admission. Since graduate students can quickly qualify for residency status, the distinction between the resident and nonresident is not a significant factor in increasing revenues from students.

2. Graduate programs commonly require a commitment such that students expect to go where the programs are and do not expect that programs be brought in proximity to them. There are, of course, some exceptions, such as programs necessary for employed teachers to maintain certification and qualification for continued employment.

3. Institutions in the State System still lag in the invention and implementation of varied and nontraditional delivery systems to meet the diverse needs of today's graduate students.

4. By far the greatest access to graduate programs is in the Portland metropolitan area and the Willamette Valley, where the preponderance of the state's population is found. Access to graduate programs is a problem in sparsely populated Eastern Oregon.

5. Most of the graduate programs available in independent colleges and universities are in the Portland area and a large majority of these are in education.

6. The total number of graduate degrees earned in independent institutions is small by comparison to the number earned in State System institutions. Graduate students select State System institutions to a far greater degree than they do independent institutions.

7. In considering proposed new graduate programs, the State System pays careful attention to avoiding negative impact upon independent institutions or duplicating their programs.

c. "Overlap and duplication of graduate study in state system institutions."

We find that:

1. The Board of Higher Education does a thorough job of supervision to avoid unnecessary overlap and duplication of graduate programs. It does a far superior job than that done in states comparable to Oregon.

2. Only in a few disciplines has program duplication been permitted, and the Board has examined these carefully for their need and cost.

3. Some programs which in name appear to duplicate other programs do not in fact do so. Difference in program substance and in students to be served are so marked that the programs do not in fact duplicate each other.

4. Only in graduate programs in education, some of which are offered by six institutions within the State System, does there appear to be a problem in an era when steady or declining demand for teachers is forecast. But most graduate work in education is carried on to serve the already employed teacher, and the programs in the State System appear to be necessary.

5. In the core areas of the liberal arts and sciences, duplication of graduate programs to the MA/MS level is not, by itself, objectionable and even at the PhD level, some duplication may be justified. Where quality programs can be offered at two or more State System institutions without excessive costs, and if they attract qualified faculty and competent student participants, duplication contributes to citizen access and improved institutional quality.

   Each duplication of a graduate program requires justification through evidence of active interest and need, geographic accessibility, cost factors, and post-degree employment opportunities.

6. Graduate programs in the biological and physical sciences at Portland State University and the University of Oregon Health Sciences Center complement each other without duplication.

d. "Comparative costs of graduate programs."

We find that:

1. The physical and biological sciences are more costly in support services needed to carry on graduate programs. The cost difference in the so-called hard sciences versus the soft is not in faculty salaries; it is in these necessary support services and in higher faculty per student ratios necessary for science instruction.

2. Program costs vary considerably among the various disciplines and according to master's or doctoral level of work being carried on at various institutions As the hard sciences have increased in demand and less expensive programs have decreased in demand, program costs have increased.

3. Older faculty with extended periods of service in long-established programs cost more than newer, younger faculty. This fact distorts cost comparisons.

4. No significant cost savings would result if a graduate program were closed at one institution and expanded at another to which the students might transfer.

5. Smallness of scale increases costs of graduate offerings at Eastern Oregon State College, which must serve needs in a sparsely populated area of the state.

6. Relative costs are not the only criterion by which the Board judges establishment or continuation of graduate programs.

7. Despite conflicting demands and strongly held views at various institutions about "just" treatment, the Board has made all possible effort to make fair and equitable distribution of limited funds in support of graduate programs throughout the State System.

8. It is difficult to assess actual costs of graduate education from the data currently available.

e. "Plans to adjust graduate programs as may be required to bring programs in line with need. Priorities for dealing with declining enrollments and resources should be indicated."

We find that:

1. Current projections do not show that enrollments will decline. There is no evidence that fewer citizens will seek the services of Oregon's graduate programs. Oregon will grow through in-migration.

2. Through the process of studying their opportunities for employment and through making their own choices, students make more rapid and accurate changes than can be done by the state in response to official forecasting. Priorities are established from the bottom up rather than from the top down. Programs are brought into line with need as students vote with their feet.

3. Institutions within the State System are unable to meet all pressures for rapid change as they seek to respond to shifting demands. Impediments to rapid change range from faculty contract commitments to physical facilities.

4. The institutions are cautious in their attempt to adjust programs to bring them in line with perceived needs, realizing that harmful disruption of programs and attachment to fads may result.

5. Graduate programs in teacher education are serving principally employed teachers who are required to improve their skills and to qualify for continued certification.

B. Recommendations

1. The State Board of Higher Education should recognize that the pressures for funding services for an increased diversity of special interests in the state are forcing the Legislature to scrutinize carefully expenditures for higher education. The Board should further recognize that in the emerging tug-of-war between social services and higher education for the allocation of state tax dollars, graduate education--serving a smaller constituency--is in the most vulnerable position. Moreover, the Board should recognize that the benefits of graduate education are not as self-evident as those of social services.

2. Recognizing this emerging conflict for funding, the State Board of Higher Education should prepare to provide Legislators with the information they require in readily-understandable language to facilitate the making of wise decisions. This requires improved communication with the Legislature and with the people of the state. Special attention should be given to the following:

   a. Clear and graphic explanation of the basis for continuation and duplication of graduate programs in education.

   b. Readily-understandable presentation of the costs of all graduate programs.

c. Demonstration of the positive impact of all graduate education on the welfare of the state.

3. To prepare for a possible financial crunch, the State Board of Higher Education should accelerate its present efforts to adjust costs to stable (or diminishing) financial resources.

4. Cost adjustments should be carefully planned so that quality programs are maintained and other State Board of Higher Education goals are not impaired. In order to accomplish these objectives, the State Board of Higher Education should initiate value analysis studies and should involve all levels in the System, including faculty and administration as well as visiting experts and agencies outside the System. The term "value analysis" is here used to mean value in terms of cost and quality.

5. If the State Board of Higher Education is charged with justifying graduate education by employment and research needs of Oregon and the nation, guidelines must be developed for this justification process.

Determination of employment needs is an inexact process; there are no reliable formulae nor has a methodology for forecasting manpower needs been developed that can be used with confidence.

The State Legislature, in conjunction with the Board, should select the procedure which can serve as a methodology.

6. Recognizing the shifting nature of state priorities and the rapidity with which technological and social changes have occurred, and will probably continue to occur, the State Board of Higher Education should set up a mechanism for technological and sociological forecasting to assist in its planning process.

   The mechanism could be internal, through utilization of university expertise, or by an advisory board or similar mechanisms.

7. The State Board of Higher Education should study and develop methods for clarifying comparative costs of graduate programs. Unless comparative cost figures are self-explanatory and require no further explanation, they lead to misunderstanding, suspicion, and frustration on the part of the Legislative Assembly.

8. Adjustments of graduate programs to deal with declining enrollments are taking place as rapidly as the institutional systems permit. If greater rapidity is required, new institutional mechanisms for dealing with personnel and contracts should be explored.

9. The State Board of Higher Education should appoint an advisory committee on graduate education to continue on a permanent basis to evaluate the questions posed in the Budget Note and similar questions.

10. The State Board of Higher Education should develop and utilize alternate methods for initiating graduate programs to be more responsive to needs of the state.

11. Recognizing the importance of graduate education for "personal enrichment", the State Board of Higher Education should examine innovative methods for delivering this type of education without increasing financial demands on the State System. Innovative methods could include expansion of the Division of Continuing Education, creation of an alternate fee system, etc.

12. Recognizing that certification requirements established by the Teacher Standards and Practices Commission and the Oregon Board of Education have a significant effect upon demands for graduate programs, the Oregon Board of Education and the Teacher Standards and Practices Commission should be invited by the Board of Higher Education to discuss the costs to the state and the value of courses being offered by State System institutions for these certification requirements.

13. The Board of Higher Education should initiate a policy of increasing graduate programs offered in the Portland area and should develop long-range plans for this purpose. These plans should include development of the necessary infrastructure for quality graduate programs. The Committee recognizes the great difficulties the Board faces in developing such programs: severe budget constraints, the necessity of using expensive programs where they are presently located, the time required to build quality programs.

14. The State Board of Higher Eduation should investigate the feasibility of further concentration of special education at Oregon College of Education.

15. Qualified students should be permitted to select the graduate programs of their choice, whether or not jobs suited to their training are believed to be available. Choices should remain with the individual. The individual should be provided with all existing information about possible opportunities, but he or she should be free to choose and should bear the risks of that choice.

The Committee does not recommend that the Board of Higher education initiate a quota system for admissions into graduate programs. Highly centralized planning with quota controls is prone to much error and tends to be far less productive than a system based upon freedom of choices and personal responsibility for choices made.

16. The Board of Higher Education should encourage enrollment of qualified graduate students from out of state. The flow of students in graduate programs across state boundaries serves the public interest, and graduate students from out of state make a stronger Oregon.

17. Graduate programs in State System institutions should be of high quality and should be exacting and challenging to students. The heavy undercurrent of anti-elitism and the leveling down of requirements observable in many places in our society should be resisted vigorously in graduate education. Quality is of primary importance in graduate education.

18. Decisions about retention, development, and addition of graduate programs by the Board of Higher Education should be made on the basis of service to the state, with consideration of other criteria,

such as protection of the state's investment in its institutions, as secondary.

## IV. Method of Study

The Committee held its first meeting November 10, 1977, elected a chairman, and immediately began assessing the scope of its task and the data required as a basis for decisions. Resource and statistical material was provided by the State Board of Higher Education as required. Consultation and discussions were held with the Chairman and several members of the State Board, the Chancellor, Legislators Vera Katz and Jack Ripper, and others with views on graduate education. Dr. Leonard Rice, President Emeritus of Oregon College of Education, served as Committee staff, working with Dr. Miles Romney and others in the Chancellor's Office to provide data.

Basic assumptions for policy decisions made by the State Board were evaluated for current validity.

Committee discussions identified issues and opinions. This report is a synthesis of Committee conclusions.

## V. Current Issues in Graduate Education in Oregon

Examination of the Budget Note focused attention on four questions, as follows:

1. Are graduate programs in Oregon justified by employment and research needs of the state and nation?

2. Are graduate programs as accessible as possible to Oregonians and to nonresidents?

3. Does costly and unjustifiable duplication of graduate programs exist in Oregon?

4. Are the comparative costs of graduate programs reasonable?

In examining these questions raised by the Budget Note, the Committee identified a number of fundamental issues to be addressed. These are listed below:

1. In the emerging competition for State budget funds between education and social services, is the commitment of the present level of the higher education budget to graduate education defensible?

2. To obtain maximum benefit from limited budget funds, are programs with low degree conferral or programs which are duplicated or offered by independent institutions defensible?

3. Can the expenditure of state funds on the education of out-of-state and foreign students be justified?

4. Are employment requirements of Oregon professions and industries and the training needs of Oregon citizens the major justification for expenditures for graduate programs in Oregon?

5. In setting graduate program priorities, what considerations should be given to the role of graduate education in personal cultural enrichment and improving the quality of life? If this role assumes greater importance how will it influence justifying graduate programs in humanities and social science subjects at Oregon State University and further expansion of programs at Portland State University, where a larger number of Oregonians will have ready access to the programs? Can the Division of Continuing Education assume a larger responsibility for this role?

6. Are the procedures for establishment and continuance of graduate programs responsive to the needs of the people of the state as well as to the needs of the institutions?

7. Are the establishment and continuance of graduate programs as vehicles for obtaining federal research grant funds an educational and financial asset to the state? Do such funds enhance or detract from the quality of education?

8. Has the State System of Higher Education been innovative in funding graduate education? Are there additional methods of supporting graduate education other than general state funds and federal funds?

## VI. Discussion

1. The State Board of Higher Education is responsible for maintaining an organized, efficient system of graduate education, making curricular allocations, avoiding excessive costs and duplication of programs, carrying out the functions of custody, transmission, and generation of knowledge, and fulfilling its responsibilities under ORS 35.070.

   The Board discharges these duties with professional expertise and with obvious enthusiasm for the task.

   The graduate programs in State System institutions are generally designed to meet the manpower and research needs of the state. Advanced degree programs have been selectively developed to capitalize upon the special strengths of the several institutions and to meet state needs: the applied sciences, including forestry, agriculture, oceanography, and engineering at Oregon State University; the liberal arts, business and professional programs, and basic science at the University of Oregon; social work, urban studies, and business and public administration at Portland State University; and the health sciences at the University of Oregon Health Sciences Center. Graduate programs in teacher education, which serve the schools in every community of the state, have been developed in the three state colleges and the three universities. These advanced programs in education serve persons past the entry level for teaching who need advanced work for improving their skills and to meet requirements for continued certification or for specialized or administrative roles in the schools.

The Board continually and systematically evaluates graduate programs for continuation, continuation on a conditional basis, consolidation, or termination. This is done with the assistance of institutional staffs, the Board's staff and Committee on Instruction, Research, and Public Service Programs, and outside consultants selected on the basis of their expertise and national reputation in the fields under review. For instance, in January 1978, the Board was host to seven reputable scientists, headed by Oregon-educated and two-time Nobel prize-winner, Dr. Linus Pauling, who had been invited to review chemistry, physics, and biological science graduate programs at the three state universities.

The following "basic assumptions" that guide the Board in its decisions regarding graduate programs provide effective guidelines:

(1) That curricular decisions regarding graduate programs should be based on the educational needs of the state, broadly defined.

(2) That separate institutions should assess their opportunities and obligations and plan new programs aggressively but that the Board must assess and approve program proposals on the basis of the best interests of the state, including its willingness and capacity to provide necessary financial support.

(3) That nothing other than good quality programs are to be approved.

(4) That in general, the Board should approve only those graduate professional programs which give promise of being accredited by responsible accrediting agencies.

(5) That the concept of differential mission and function among the various institutions within the State System remains valid for graduate education in Oregon.

(6) That unnecessary and unwise duplication of programs should be avoided but that some carefully planned duplication is both necessary and economical.

(7) That in graduate programs where costly equipment, highly specialized faculty, and unique building facilities are required, a single institution should be given exclusive responsibility for carrying on a program of excellence.

(8) That the Board should take into account existing graduate offerings in private institutions within Oregon in making curricular decisions within the State System.

(9) That the assignment of exclusive jurisdiction over a program to a particular institution cannot be considered irrevocable.

(10) That in establishing new graduate programs or making additions to present programs, the Board should give emphasis to location so as to make programs accessible to the largest number of students at the least financial cost.

The State Board has husbanded tax dollars well in providing graduate education. The Board of Higher Education and its Chancellor are seriously impressed by the budgetary limits on the Oregon Legislature, and are acting responsibly in the face of these limits.

While husbanding tax dollars, the Board has shown its concern for quality. A university's stature in graduate education is judged by the number, quality, and accomplishments of its degree graduates and the quality, relevance, and quantity of its research programs, especially as evidenced in publication. The products of Oregon institutions show up well.

Quality of graduate education has been maintained by the Board. All graduate programs are accredited by appropriate accrediting agencies or professional societies or are expected by the Board to qualify for accreditation in due time.

New graduate programs proposed by institutions are subject to close scrutiny by the Board to ascertain that they meet basic criteria, described in Appendix E.

2. The enrollment in graduate schools is expected to increase. Although the numbers of students who will pursue graduate work in State System institutions cannot be forecast with accuracy, a review of such forecasting done in the past with a review of actual enrollments shows the State System to be reasonably accurate but generally erring on the conservative side. The attachment of budget projections and therefore funding expectations to such forecasts probably tends to act as a conservative force.

The latest official projections for graduate enrollment reflect a very steady enrollment growth through 1988-89, not a reduction.

| Year | Fall Term Headcount | Three-Term FTE |
|---|---|---|
| 1977-78 | 12,858 | 6,735 |
| 1978-79 | 13,112 | 6,835 |
| 1979-80 | 13,451 | 6,962 |
| 1980-81 | 13,666 | 7,032 |
| 1981-82 | 13,867 | 7,095 |
| 1982-83 | 14,061 | 7,159 |
| 1983-84 | 14,237 | 7,206 |
| 1984-85 | 14,408 | 7,252 |
| 1985-86 | 14,548 | 7,284 |
| 1986-87 | 14,684 | 7,315 |
| 1987-88 | 14,803 | 7,335 |
| 1988-89 | 14,919 | 7,352 |

3. Duplication of graduate programs between institutions in the state has been kept to a minimum. In Colorado, a state with a population approximating that of Oregon, 25 master's degree programs are duplicated at the University of Colorado and Colorado State University. At these same universities, 18 doctoral programs are duplicated. In contrast, only 7 of these master's programs are duplicated at the University of Oregon and Oregon State University, and only 4 of the doctoral programs are duplicated in the Oregon institutions.

Similar contrasts in duplication of graduate programs are observed in Washington and Iowa (see Appendix C).

Oregon has a long history of higher education administrative controls over duplication of courses and programs. The State Board of Higher Curricula exercised such controls from 1909 to 1929 with respect to the University of Oregon and Oregon State University. Since 1929, the controls have been administered by the State Board of Higher Education, which has authority over all institutions in the State System.

The Board may be subjected to criticism for allowing too little program duplication. Pressures exist, for example, to make graduate programs accessible in the humanities and social sciences in Corvallis and for greater access to graduate work in the Portland area. But increased access to graduate education must be considered in relation to two other matters--cost and quality. Access, cost, and quality must be kept in balance. Multiplication of programs to improve access will increase cost and may reduce quality. In turn, too tight a cost

containment will disadvantage access and quality. There is a tri-balance among cost, access, and quality which works with the sensitivity of a teeter-totter.

This balance requires a working compromise with what can be afforded, with some limits on access, and with the maintenance of the best quality possible under existing circumstances. This requires efficiency with only a minimum duplication of effort. The private institutions as well as the public ones are considered within the total program. The graduate student cannot expect to find in each case his primary interest of study at the institution of his or her first choice. In many cases, students must travel. Administrative activities must contribute to efficiency of cost and effort. Problems with personnel and tenure require adjustments for the student, the teacher, and the administrator. There is no other answer to the problems of limited resources, limited access, and preservation of quality graduate programs worthy of the state of Oregon.

Overlap and duplication of graduate study in State System institutions is significant in only a few disciplines. Master's degrees are granted in 22 HEGIS code disciplines. (See Appendix K.) Only six of these degrees are offered in two institutions. Mathematics, physical sciences, psychology, business and public affairs are offered in just three institutions. Biological sciences, health professions, and interdisciplinary studies are offered in four institutions. Only education degrees are offered in six institutions. Costs for these programs vary widely. (See Appendix L.)

Upon examination, some program duplication in title proves not to be duplication in substance. The doctoral degree in geography at Oregon State University is directed to physical and resource geography, which is appropriate to Oregon State University. The doctoral degree in geography at the University of Oregon is more inclusive. Doctoral degree programs at Oregon State University in biology and mathematics are similarly specialized according to the mission and strength of Oregon's applied sciences university; they do not duplicate in substance similarly named programs at the University of Oregon. The marine biology research work at the University of Oregon in Charleston does not duplicate that done by Oregon State University in Newport. In the field of education, numerous specialties exist: educational administration, speech handicapped, education of the deaf, remedial reading, early childhood education, vocational education, etc. Specialized education programs such as these are carefully controlled so as to avoid any unnecessary duplication while maintaining quality and serving the needs of the state. Graduate programs named "interdisciplinary studies," offered at four institutions, are by no means the same in substance.

4. The recent reduction in demands for new elementary and secondary teachers has already resulted in a very significant reduction in production of teachers in State System institutions. Further cuts in the State System's teacher production are not justified by the projected public school teaching staff requirements (see Appendix D). Total public school enrollment is expected to vary between 1977-78 and 1988-89 by only 9%, from a low of 483,520 in 1981-82 to a high of 527,136 in 1988-89. The trend is for a general increase. The number of teachers will be required to increase correspondingly.

In an area like elementary education, in which all six liberal arts colleges and universities of the State System have graduate programs to the master's degree level, the Board may come under pressure to eliminate one or more programs entirely rather than letting all programs shrink in size. Before phasing out such a graduate program entirely in one or more of these institutions, the Board must consider the following questions: Would reduction in cost at one institution through a program elimination simply increase costs at other institutions where students would transfer? Would elimination of a graduate program in education at an institution seriously impair the undergraduate program at that institution? If so, should both the graduate and undergraduate programs be eliminated? What impact would elimination of a graduate program in education have on the needs of teachers in a geographic area of the state for access to graduate work for upgrading their professional competence and for meeting requirements for continued certification?

5. The State Board of Higher Education has acquired, in recent years, responsibilities for meeting social priorities beyond the education of individuals. In previous eras, State System graduate education focused on offering courses to permit students to select the programs of their choice. The discipline of the job market affected the choices, but the relationship between education and jobs was indirect and casual.

Currently, students select graduate courses on much the same basis, with the emphasis on preparation for jobs ebbing and flowing with the focus of the times. But the Board of Higher Education is now charged by the Legislature with the additional responsibility of matching graduate programs with priorities, needs, and resources of the state.

There are no generally accepted rules or formulae for matching graduate programs with priorities, needs, and resources of the state. Philosophical approaches to solutions to this problem diverge widely, from advocating enrollment quotas to match projected job opportunities to questioning whether the State Board of Higher Education has any responsibility for limiting educational programs to coincide with manpower planning (see Appendix F).

Several federal agencies and other organizations are active in forecasting PhD supply/demand projections (see Appendix H). Academic demand, which forecasters believe they can project with greater confidence than non-academic demand, is of greatest significance. Over the last two decades, approximately half of all new

PhD's have gone into college teaching, one-fourth into research and development, and the balance into administration and professional services.

It is important to recognize that past manpower projections have been notoriously inaccurate, and no improvements in techniques have been made to inspire more confidence in current projections.

It is generally recognized that any employment and research needs that can be seen or foreseen should be considered in establishing new graduate programs or in maintaining existing programs. But the converse is not true: even if there are no observable employment or research needs in a given subject matter area, graduate offerings in the area may be fully warranted as needed contributors to the quality of life in Oregon.

Much of what has been described as the "quality of life" is engendered from quality programs in graduate education. Many persons may not see the connection, but the ultimate effect of advanced graduate programs on the average person's environment and well-being is tremendous.

Caught between institutional realities, i.e., tenured faculties, rising expectations of academic personnel, inflation, physical facilities, and similar limiting factors, and the political realities to which fund allocators (the Legislature) must respond, the Board has no clear guidance or mandate on how precise an equation it should attempt to devise to match graduate programs with priorities, needs, and

resources of the state (even if these needs could be forecast with confidence).

Priorities and needs for the state are evaluated differently by successive legislative sessions. The State System of Higher Education does not have the flexibility to respond to these changing perceptions as frequently as the changes occur.

6. The State System of Higher Education constantly faces the pressure for program changes in graduate education as a result of changing employment and research needs.

Such pressures call for expeditious changes in program allocations, adjusting of resources, and careful balancing of competing demands.

Employment needs and opportunities influence enrollment of graduate students who are concerned with improving their job prospects.

These needs are interrelated with research needs. Changing state and national priorities lead to alteration of research priorities which, in turn, beget changes in research funding for graduate training and create new job opportunities. Within the past two decades, federal priorities have swung from space, defense, and technology to environmental protection; to social, economic, and technical attention to resources; and to planning and population problems. Federal funding of graduate programs to meet these priorities has altered with the changing focus.

Considering the difficulties faced by the State Board of Higher Education in adjusting tenure and contract commitments, building physical plants, and obtaining qualified faculty, the response to changing priorities has been remarkably rapid.

Only the three universities (the University of Oregon, Oregon State University, Portland State University) and the University of Oregon Health Sciences Center are expected to be research institutions as

well as teaching and public service institutions. For these institutions, instruction, research, and service have been allocated as principal responsibilities.

During the past decade, nearly 85% of all research at Oregon State University was funded by federal contracts and grants. In 1976-77, three-quarters of the more than $34 million research budget was from federal and other non-state sources. The University of Oregon received some $18 million in gifts and contracts in 1976-77 of which $8.5 million was for research, $7.4 million for instruction, and $2.2 million for extension; this was principally from federal funds. The University of Oregon Health Sciences Center reported receipts of $14.1 million, of which $8.8 million was from federally funded research, $3.1 million in federal training grants, and $1.6 million from foundations and local and national societies respectively. Portland State University reports $4.4 million from grants and contracts, more than $3.5 million of which was from federal funds. Of the $4.4 million, $2.5 million was for research and $1.6 million for training grants.

Competititon for these research funds is nation-wide and sharp. The State Board of Higher Education has been innovative (and even opportunistic) in creating institutes with state "seed" money to increase eligibility for appropriate federal funds. Creation of such institutes as the Institute of Molecular Biology (University of Oregon) and the other 26 centers and institutes at the University of Oregon is a direct response to current national research priorities.

Oregon State University operates 20 research centers and institutes. Many of these were created in the past decade and are direct responses to national research needs and priorities. Portland State University operates 25 such centers and institutes and is also responsive to national research needs.

The indices of quality of scholarship and research for Oregon point to a favorable rating. Among the top 35 PhD-producing state universities, the University of Oregon ranks in the upper half of research-responsive indicators. The national distinction of Oregon State University as a research institution in the sciences and related professional fields is well attested. Research at the University of Oregon Health Sciences Center has brought nation-wide attention to Oregon.

The economic well-being of Oregon has been and is greatly improved by research carried on at the universities. This fact is well documented and further information can readily be supplied if required.

Research needs of the nation are well served by the state universities as a consequence of federal funding of research programs.

Specific research needs of the state are addressed to a lesser extent, although most of the federally sponsored research has a spin-off benefit to Oregon industries and institutions. Institutions such as the Forest Research Laboratory at Oregon State University, funded by the state and industry, contribute to the forest industry.

It is much easier to support the need for research programs which promise to meet employment needs than it is to support basic research. Basic research is much more prospective in nature; its benefits and effectiveness are much more abstract within a given time frame. The nature of funding of research in State System institutions tends to emphasize structured or problem-centered research as opposed to pure or free research. Industrial research is almost all structured, and most federally funded research is directed to solution of particular problems. But institutions of higher learning must make a place for pure, basic, unfettered research. This is quest for knowledge for its own sake. Experience demonstrates that such research often falls onto fertile ground and that there are often spin-off values not originally anticipated. There is great temptation in a tight money market to eliminate basic research in order to support the more pragmatic concepts of employment bases or preconceived instructional goals. Oregon institutions try to balance applied and basic research, within financial constraints.

Much of the graduate school institutional response to state needs comes in the form of specific assistance to the legislative and executive branches of government on policy issues. The Institute for Policy Studies at Portland State University, the Bureau of Governmental Research and Service at the University of Oregon, and the Center for Capital Market Research at the University of Oregon are such services.

The number of people working for state and local government has increased 117% from 1960 to 1977. Federal government employment has

increased in Oregon 24%. The direct general expenditures of the state government increased 280% from 1960 to 1975, and local governments have increased their expenditures 265%. (Figures do not include expenditures or persons employed in education. Cost figures are not adjusted for inflation.)

Public affairs and public service have increased in importance as professions.

Graduate degrees awarded in public service have shown a corresponding increase. At the University of Oregon, master's degrees in public service have increased 9 times from the 1966-67 period to 1976-77 and almost three time at Portland State University in this period. (See Appendix K.)

This is a singular increase, but the number of graduate degrees awarded in this field is small compared to the number of people engaged in the field of government. Other than education, 102,700 persons were employed in Oregon by the federal, state, and local governments in August 1977 (see Appendix I). The 170 master's degrees in public affairs awarded in 1976-77 in the state represents considerably less than 1% of the persons working in the field.

7. Graduate programs in independent Oregon colleges and universities confer a relatively small percentage of master's and doctoral degrees.

Less than one-fifth of master's degrees were awarded by independent colleges and universities in 1976-77. Slightly over 2.3% of the doctoral degrees were granted by these universities in the same year. (See Appendix J.)

A number of independent institutions offering graduate degrees provide access to the Portland metropolitan area. Half the master's degrees offered by these institutions have been in education, with business administration a distant second.

In the Portland area, the independent colleges are conferring about as many master's degrees in education as Portland State University. Portland State University confers no doctorates in education. The largest number of doctorates in education in the state is conferred by the University of Oregon. Master's degree candidates in education evidently find the Portland area independent institutions competitive with Portland State University.

In other disciplines, except for fine arts and, more recently, engineering, Portland State University confers a larger number of master's degrees than the independent institutions.

Portland area residents do not have ready access to graduate programs in agriculture, forestry, and home economics, all offered only by Oregon State University; architecture and communications,

offered only by the University of Oregon; and computer sciences, offered only by Oregon State University and the University of Oregon. In this respect they share the location disadvantages of most of the state.

The differential costs between resident and nonresident fees undoubtedly discourages some nonresidents from entering state institutions. However, residency status can be obtained within such a short time that the fee difference is a relatively insignificant factor. Education in Oregon would suffer if there should be a substantial reduction in nonresident graduates, who give opportunity for a cosmopolitan experience on Oregon campuses. Their access to Oregon graduate programs should not be too severely restricted by imposition of unreasonably high tuition fees.

At the graduate level, the distinction between Oregonians and nonresidents tends to become unrealistic. Most students moving to Oregon for graduate work become (or can easily become) Oregon residents while carrying on their studies. Also, students who have lived in Oregon, and do both their undergraduate and graduate work here, may leave as soon as they get their graduate degree; whereas graduate students who are newcomers may remain in Oregon after they complete their studies. Thus Oregon residence would be a meaningless criterion for admission to graduate work.

Almost any graduate program that is offered in Oregon institutions will be enriched if it can attract competent students from out of state.

Oregon candidates for admission to graduate programs should have to compete with nonresidents, and should be accepted only if they are as well qualified as, or better qualified than, competent nonresidents. If any preference is accorded Oregon applicants, it should be effective only as against a nonresident having equal (but not greater) qualifications.

APPENDIX A

Budget Note on Graduate Education

The Subcommittee is concerned about graduate programs in the State System of Higher Education being matched with priorities, needs, and resources of the state. To assist the 1979 Legislative Assembly, the Board of Higher Education is to prepare and submit an examination of the following:

a. Employment and research needs of Oregon and the nation as justification for graduate programs in this state.

b. Access by Oregonians and nonresidents to Oregon graduate programs, including those in independent colleges and universities.

c. Overlap and duplication of graduate study in state system institutions.

d. Comparative costs of graduate programs.

e. Plans to adjust graduate programs as may be required to bring programs in line with need. Priorities for dealing with declining enrollments and resources should be indicated.

The Board of Higher Education's examination results are to be made available to the Education Coordinating Commission by May 1, 1978. The Commission shall review the reports and prepare an analysis and evaluation of the issues, develop possible alternative approaches, and make recommendation to the Emergency Board by August 1, 1978. The Board of Higher Education's 1979-81 budget request as submitted to the Governor, shall consider the results of the study as accepted by the Emergency Board. The report of the Board of Higher Education and the review of the Oregon Educational Coordinating Commission are to be presented to the 1979 Legislature, with copies available to all members by December 1, 1978.

APPENDIX B

Members of the
Graduate Education Committee

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Mr. Marion T. Weatherford
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Member of the Board,
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Pacific Northwest Bell
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Mr. Peter T. Pope
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Mr. Glenn E. (Pat) Randall
Secretary-Treasurer
Oregon AFL-CIO
Salem, Oregon

Mr. Oscar Weed
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## APPENDIX C

### Duplication of Graduate Programs in Other States and Oregon

### Master's Degree Program Allocation in the Liberal Arts to the Institutions of the State System of Higher Education, 1977-78

**Master's Degree Programs in Liberal Arts Authorized a Single Institution**

| | | | |
|---|---|---|---|
| Atmospheric Science | (OSU) | Creative Writing | (UO) |
| Biophysics[1] | (OSU) | Classics | (UO) |
| Botany/Plant Pathology[1] | (OSU) | Romance Languages | (UO) |
| Entomology[1] | (OSU) | Russian | (UO) |
| Genetics[1] | (OSU) | Linguistics | (UO) |
| Geography (Science) | (OSU) | Music | (UO) |
| Geophysics | (OSU) | Philosophy | (UO) |
| Oceanography | (OSU) | International Studies | (UO) |
| Resource Economics | (OSU) | Urban Studies | (PSU) |
| Statistics[1] | (OSU) | General Social Science | (PSU) |
| Zoology[1] | (OSU) | General Arts and Letters[1] | (PSU) |
| Asian Studies | (UO) | Anatomy[1] | (UOHSC) |
| Art History | (UO) | Medical Psychology | (UOHSC) |
| Comparative Literature | (UO) | Pathology[1] | (UOHSC) |
| Dance | (UO) | Physiology[1] | (UOHSC) |

**Master's Degree Programs in Liberal Arts Authorized Two Institutions**

| | | | |
|---|---|---|---|
| Biochemistry[1] | (OSU, UOHSC) | Geography | (UO, PSU) |
| Microbiology[1] | (OSU, UOHSC) | German | (UO, PSU) |
| Computer Science | (OSU, UO) | History | (UO, PSU) |
| General Science | (OSU, PSU) | Political Science | (UO, PSU) |
| Anthropology | (UO, PSU) | Psychology | (UO, PSU) |
| Fine Arts | (UO, PSU) | Sociology | (UO, PSU) |
| Biology[1] | (UO, PSU) | Speech | (UO, PSU) |
| Economics | (UO, PSU) | Theater | (UO, PSU) |
| English | (UO, PSU) | French | (UO, PSU) |
| | | Spanish | (UO, PSU) |

**Master's Degree Programs in Liberal Arts Authorized Three Institutions**

| | | | |
|---|---|---|---|
| Chemistry | (OSU, UO, PSU) | Mathematics | (OSU, UO, PSU) |
| Physics | (OSU, UO, PSU) | Geology | (OSU, UO, PSU) |

**Master's Degree Programs in Liberal Arts Authorized Four Institutions**

Interdisciplinary Studies (OSU, UO, OCE, SOSC)

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[1] See footnote 1, p. 46.

Doctoral Degree Program Allocations in the Liberal Arts
to the Institutions of the State System of Higher Education, 1977-78

Doctoral Degree Programs in Liberal Arts Authorized a Single Institution

| | | | |
|---|---|---|---|
| Atmospheric Science | (OSU) | Foreign Languages | |
| Biophysics[1] | (OSU) | German | (UO) |
| Botany & Plant Pathology[1] | (OSU) | Romance Languages | (UO) |
| Computer Science | (OSU) | History | (UO) |
| Entomology[1] | (OSU) | Music | (UO) |
| General Science | (OSU) | Philosophy | (UO) |
| Geophysics | (OSU) | Political Science | (UO) |
| Oceanography | (OSU) | Psychology | (UO) |
| Resource Economics | (OSU) | Sociology | (UO) |
| Statistics | (OSU) | Speech | (UO) |
| Zoology[1] | (OSU) | Theater | (UO) |
| Genetics[1] | (OSU) | Geography | (UO) |
| Geography (Science) | (OSU) | Environmental Science and | |
| Anthropology | (UO) | Resources[1] | (PSU) |
| Art History | (UO) | Urban Studies | (PSU) |
| Biology[1] | (UO) | Systems Science | (PSU) |
| Comparative Literature | (UO) | Anatomy[1] | (UOHSC) |
| Economics | (UO) | Human Genetics[1] | (UOHSC) |
| English | (UO) | Medical Psychology | (UOHSC) |
| | | Pathology[1] | (UOHSC) |
| | | Physiology[1] | (UOHSC) |

Doctoral Degree Programs in Liberal Arts Authorized Two Institutions

| | | | |
|---|---|---|---|
| Chemistry | (OSU,UO) | Physics | (OSU,UO) |
| Geology | (OSU,UO) | Biochemistry[1] | (OSU,UOHSC) |
| Mathematics | (OSU,UO) | Microbiology[1] | (OSU,UOHSC) |

[1] Four institutions in the State System offer graduate programs in the biological sciences. The Board has authorized (1) separately identified programs in the biological sciences at Oregon State University (seven programs) and the University of Oregon Health Sciences Center (six programs); (2) a single program in biology at the University of Oregon with opportunities for study in most of the basic biological science areas; and (3) a single program in biology at the master's degree level and an interdisciplinary doctoral program in environmental science and resources-biology at Portland State University.

Graduate Degree Program Allocation in Professional Fields
to the Institutions of the State System of Higher Education, 1977-78

Professional fields in which exclusive allocation of degree programs (both graduate and undergraduate) has been given to single institutions. In the following 11 professional fields, the Board has given exclusive allocation of degree programs to single institutions (UO, 3 fields; OSU, 5 fields; PSU, 1 field; UOHSC, 2 fields). No institution other than the one indicated may offer programs leading to a degree in these fields.

| | | | |
|---|---|---|---|
| Architecture | UO | Home Economics | OSU |
| Law | UO | Pharmacy | OSU |
| Librarianship | UO | Veterinary Medicine | OSU |
| Agriculture | OSU | Medicine | UOHSC |
| Forestry | OSU | Dentistry | UOHSC |
| | | Social Work | PSU |

Professional fields in which exclusive allocation to offer master's programs has been given to single institutions. In 24 additional professional fields, the Board has given exclusive allocation to offer master's degree programs to single institutions (UO, 7; OSU, 8; PSU, 3; UOHSC, 2; OCE, 3; SOSC, 1). No other State System institution may offer programs leading to master's degrees in these fields.

| | | | |
|---|---|---|---|
| Engineering | OSU | Deaf and Hard of Hearing | OCE |
| Journalism | UO | Education of the Socially and Educationally Deficient | OCE |
| Recreation and Park Management | UO | Special Education, General | UO |
| Applied Science | PSU | Educational Psychology | UO |
| Education: | | Curriculum and Instruction | UO |
| Adult Education | OSU | Medical Technology | UOHSC |
| Agricultural Education | OSU | Nursing | UOHSC |
| College Student Services Administration | OSU | Public Service: | |
| Home Economics Education | OSU | Industrial & Labor Relations | UO |
| Industrial Education | OSU | Juvenile Correction | UO |
| Science Education | OSU | Criminal Justice | PSU |
| Vocational Education | OSU | Correctional Administration | OCE |
| Visually Handicapped | PSU | | |
| Outdoor Education | SOSC | | |

In 16 field, the Board has given exclusive allocation to offer doctoral programs to single institutions (UO, 13; OSU, 3).

| | | | |
|---|---|---|---|
| Business Administration | UO | Educational Administration | UO |
| Recreation and Park Management | UO | Educational Psychology | UO |
| Education: | | Health Education | UO |
| College Student Services Administration | OSU | Higher Education | UO |
| Science Education | OSU | Music Education | UO |
| Vocational Education | OSU | Physical Education | UO |
| Art Education | UO | Special Education: | |
| Curriculum and Instruction | UO | Special Education | UO |
| Early Childhood Ed. | UO | Speech Pathology and Audiology | UO |

Multiple authorization to offer master's/doctoral degrees in some professional fields. In certain fields in which student interest is widespread, allocations of master's and/or doctoral programs have been given by the Board to two or more institutions. This is true in the fields of professional education and business administration, public administration, and urban planning as the following tabulation shows.

| Subject Field | No. Institutions Authorized Program |
|---|---|
| **Master's Degree Programs** | |
| Elementary Education | 6 (UO, OSU, PSU, SOSC, OCE, EOSC) |
| Secondary Education (in specified fields) | 6 (UO, OSU, PSU, SOSC, OCE, EOSC) |
| Business Administration | 4 (UO, OSU, PSU, SOSC) |
| Special Education | 3 (UO, PSU, OCE) |
| Counseling | 3 (UO, PSU, OSU) |
| Public Administration | 2 (UO, PSU) |
| Urban Planning | 2 (UO, PSU) |
| **Doctoral Degree Programs** | |
| Education General (including elementary and secondary) | 2 (UO, OSU) |
| Counseling | 2 (UO, OSU) |

## Master's and Doctoral Programs Duplicated at University of Washington and Washington State University

### Master's Degree Programs

*Anthropology
*Biochemistry
*Botany
Business Administration
Chemistry
*Civil Engineering
Computer Science
*Economics
Education
*Electrical Engineering
*English
*Fine Arts
*Foreign Languages
*Genetics
Geology
*History
*Home Economics
Mathematics
*Mechanical Engineering
*Music
*Pharmaceutical Science
*Philosophy
*Physical Education
Physics
*Political Science
*Public Health
*Psychology
*Sociology
*Speech
*Zoology

### PhD Programs

*Anthropology
*Biochemistry
*Botany
Chemistry
*Computer Science
*Economics
Education
*English
*Genetics
Geology
*History
Mathematics
*Pharmaceutical Science
Physics
*Political Science
*Psychology
*Sociology
*Speech
*Zoology

*Asterisk indicates programs which are not duplicated between Oregon State University and the University of Oregon.

Source: Washington State University 1976-78 catalog. University of Washington 1975-77 catalog; programs confirmed by telephone 11-4-77.

## Master's and Doctoral Programs Duplicated at University of Colorado and Colorado State University

### Master's Degree Programs

*Anatomy
*Anthropology
*Art
*Biochemistry
*Biophysics and Genetics
Business Administration
Chemistry
Computer Science
*Economics
Education
*Electrical Engineering
*English
Geology
*History
Mathematics
*Mechanical Engineering
*Microbiology
*Music
*Philosophy
Physics
*Political Science
*Psychology
*Radiology
*Sociology
*Theater

### PhD Degrees

*Anatomy
*Biochemistry
*Biophysics
Chemistry
*Civil Engineering
*Economics
*Electrical Engineering
Geology
Mathematics
*Mechanical Engineering
*Microbiology
*Pathology
Physics
*Physiology
*Political Science
*Psychology
*Radiology
*Sociology

*Asterisk indicates programs which are not duplicated between Oregon State University and the University of Oregon.

Source: Colorado State University and University of Colorado catalogs, 1976-77.

## Master's and Doctoral Programs Duplicated at University of Iowa and Iowa State University

### Master's Degree Programs

*Anthropology
*Biochemistry
Biology
*Botany
*Chemical Engineering
Chemistry
*Child Development
*Civil Engineering
Computer Science
*Economics
Education
*Electrical Engineering
*English
Geology
*History
*Industrial Engineering
*Journalism
Mathematics
*Mechanical Engineering
*Nutrition
Physics
*Physiology/Biophysics
*Political Science
*Psychology
*Sociology
*Statistics
*Urban/Regional Planning
*Zoology

### PhD Programs

*Biochemistry
*Botany
*Chemical Engineering
Chemistry
*Child Development
*Civil Engineering
*Computer Science
*Economics
Education
*Electrical Engineering
Geology
*Industrial Engineering
Mathematics
*Mechanical Engineering
*Nutrition
Physics
*Physiology/Biophysics
*Psychology
*Sociology
*Statistics
*Zoology

*Asterisk indicates programs which are not duplicated between Oregon State University and the University of Oregon.

Source: University of Iowa catalog, 1976-78; Iowa State University catalog, 1977-79.

APPENDIX D

ACTUAL AND PROJECTED PUBLIC SCHOOL TEACHING STAFF IN OREGON
(Excluding Counselors, Librarians)

| School Year | Total Enrollment | Employed Prior Year | Left Positions End of Year | Remaining For Current Year | Number Employed Current Year | New Hires For Year | | | Beginning Teachers | Experienced Teachers |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Replacements | Additions | Total | | |
| 1971-72 | 498686 | -- | -- | 20311 | 23639 | -- | -- | 3123 | 1938 | 1190 |
| 1972-73 | 496803 | 23639 | 2874 | 20765 | 23690 | 2874 | 51 | 2925 | 1724 | 1201 |
| 1973-74 | 496424 | 23690 | 2647 | 21043 | 24072 | 2647 | 382 | 3029 | 1766 | 1263 |
| 1974-75 | 497879 | 24072 | 3174 | 20898 | 24528 | 3174 | 456 | 3630 | 1983 | 1647 |
| 1975-76 | 499151 | 24528 | 2915 | 21613 | 24539 | 2915 | 11 | 2926 | 1455 | 1471 |
| 1976-77 | 500725 | 24539 | 2685 | 21854 | 24817 | 2685 | 278 | 2963 | 1491 | 1472 |
| 1977-78 | 498653 | 24817 | 3558 | 21259 | 24803 | 3549 | -- | 3549 | 1685 | 1864 |
| 1978-79 | 493638 | 24803 | 3557 | 21251 | 24557 | 3306 | -- | 3306 | 1570 | 1736 |
| 1979-80 | 487354 | 24557 | 3521 | 21036 | 24246 | 3210 | -- | 3210 | 1524 | 1686 |
| 1980-81 | 484509 | 24246 | 3477 | 20769 | 24120 | 3351 | -- | 3351 | 1591 | 1760 |
| 1981-82 | 483520 | 24120 | 3459 | 20661 | 24056 | 3395 | -- | 3395 | 1612 | 1783 |
| 1982-83 | 485854 | 24056 | 3450 | 20606 | 24162 | 3450 | 106 | 3556 | 1688 | 1868 |
| 1983-84 | 488249 | 24162 | 3465 | 20697 | 24338 | 3465 | 228 | 3693 | 1753 | 1940 |
| 1984-85 | 497033 | 24330 | 3493 | 20892 | 24728 | 3498 | 338 | 3836 | 1821 | 2015 |
| 1985-86 | 504623 | 24728 | 3546 | 21182 | 25106 | 3546 | 378 | 3924 | 1863 | 2061 |
| 1986-87 | 512612 | 25106 | 3600 | 21506 | 25503 | 3600 | 397 | 3997 | 1898 | 2099 |
| 1987-88 | 519951 | 25503 | 3657 | 21846 | 25868 | 3657 | 365 | 4022 | 1910 | 2112 |
| 1988-89 | 527136 | 25868 | 3709 | 22159 | 26226 | 3709 | 358 | 4067 | 1931 | 2136 |

Source: Management and Planning Services Division, Office of Administration, OSSHE.

Enrollment data: The Department of Education provided actual data for years 1971-72 through 1976-77 and estimates for years 1977-78 through 1981-82. Estimates for subsequent years, using Department of Education statistical techniques, were developed by the Management and Planning Services Division, OSSHE.

Teaching Staff: Data on teaching staff through 1977-78 were provided by the State Department of Education. Estimates for 1978-79 and subsequent years were developed by the Management and Planning Services Division. The estimates assume that the percentage of teaching staff retaining their positions each year will remain at the 1977-78 level (85.66 percent) and that the relative mix of new hires of beginning teachers (47.48 percent) and experienced teachers (52.52 percent) will continue.

Learning environment: No change in learning environment has been anticipated from that assumed in the 1977-78 data. The assumption in the above table is that school districts will reduce teaching positions by 3 percent over the period from 1977-78 to 1981-82 to match enrollments, approximately 1 percent in 1978-79 and 1979-80, and 0.5 percent in 1980-81 and 1981-82. It is possible, however, that school districts may elect temporarily to improve the learning environment by decreasing class sizes, recognizing that the enrollment decline estimated covers a relatively short period of time.

APPENDIX E

Basic Proposal for the Initiation of New
Instructional Programs Leading to Graduate Degrees

(Name of Institution)

PROPOSAL FOR THE INITIATION OF A NEW INSTRUCTIONAL PROGRAM LEADING TO THE (name of degree or certificate) IN (academic specialty or area)

Description of Proposed Program

1. Definition of Academic Area

   a. Define or describe the academic area or field of specialization with which the proposed program would be concerned.

   b. What subspecialties or areas of concentration would be emphasized during the initial years of the program?

   c. Are there other subspecialties the institution would anticipate adding or emphasizing as the program develops?

   d. Are there subspecialties that the institution intends to avoid, in developing the program?

   e. When will the program be operational, if approved?

2. Department, School, or College Responsible

   a. What department and school or college would offer the proposed program?

   b. Will the program involve a new or reorganized administrative unit within the institution?

3. Objectives of the Program

   a. What are the objectives of the program?

   b. How will the institution determine how well the program meets these objectives? Identify specific post-approval monitoring procedures and outcome indicators to be used if the program is approved.

   c. How is the proposed program related to the mission and academic plan of the institution?

   d. What are the employment outlets and the employment opportunities for persons who would be prepared by the proposed program?

4. Relationship of Proposed Program to Other Programs in the Institution

   List the closely related programs and areas of strength currently available in the institution which would give important support to the proposed program.

5. Course of Study

   a. Describe the proposed course of study.

   b. What elements of this course of study are presently in operation in the institution?

   c. How many and which courses will need to be added to institutional offerings in support of the proposed program?

6. Admission Requirements

   a. Please list any requirements for admission to the program that are in addition to admission to the institution.

   b. Will any enrollment limitation be imposed? Please indicate the limitation and rationale therefor. How will those to be enrolled be selected if there are enrollment limitations?

7. Relationship of Proposed Program to Future Plans

   a. Is the proposed program the first of several curricular steps the institution has in mind in reaching a long-term goal in this or a related field?

   b. If so, what are the next steps to be, if the Board approves the program presently being proposed?

8. Accreditation of the Program

   a. Is there an accrediting agency or professional society which has established standards in the area in which the proposed program lies? (Please give name.)

   b. If so, does the proposed program meet the accreditation standards? If it does not, in what particulars does it appear to be deficient? What steps would be required to qualify the program for accreditation?

   c. If the proposed program is a graduate program in which the institution offers an undergraduate program, is the undergraduate program fully accredited? If not, what would be required to qualify it for accreditation? What steps are being taken to achieve accreditation?

Need

9. Evidence of Need

   a. What evidence does the institution have of need for the program? Please be explicit.

   b. What is the estimated enrollment and the estimated number of graduates of the proposed program over the next five years? If the proposed program is an expansion of an existing one, give the enrollment in the existing program over the past five years.

      Is the proposed program intended primarily to provide another program option to students who are already being attracted to the institution, or is it anticipated that the proposed program will draw its clientele primarily from students who would not otherwise come to the institution were the proposed program not available there?

   c. Identify statewide and institutional service area manpower needs the proposed program would assist in filling.

   d. What evidence is there that there exists a regional or national need for additional qualified persons such as the proposed program would turn out?

e. Are there any other compelling reasons for offering the program?

f. Identify any special interest in the program on the part of local or state groups (e.g., business, industry, agriculture, professional groups).

g. Have any special provisions been made for making the complete program available for part-time or evening students?

Duplication of Effort

10. Similar Programs in the State

a. List any similar programs in the state.

b. If similar programs are offered in other institutions in the state, what purpose will the proposed program serve? Is it intended to supplement, complement, or duplicate existing programs?

c. In what way, if any, will resources of any other institutions be utilized in the proposed program?

Resources

11. Faculty

a. List present faculty who would be involved in offering the proposed program, with pertinent information concerning their special qualifications for service in this area.

b. Estimate the number, rank, and background of new faculty members that would need to be added to initiate the proposed program; that would be required in each of the first four years of the proposed program's operation, assuming the program develops as anticipated in item 8-b. What kind of commitment does the institution make to meeting these needs? What kind of priority does the institution give this program in staff assignment?

c. Estimate the number and type of support staff needed in each of the first four years of the program.

12. Library

a. Describe in as objective terms as possible the adequacy of the library holdings that are relevant to the proposed program (e.g., if there is a recommended list of library materials issued by the American Library Association or some other responsible group, indicate to what extent the institution's library holdings meet the requirements of the recommended list).

b. How much, if any, additional library support will be required to bring the library to an adequate level for support of the proposed program?

c. How is it planned to acquire these library resources?

13. Facilities and Equipment

a. What special facilities in terms of buildings, laboratories, equipment are necessary to the offering of a quality program in the field and at the level of the proposed program?

b. What of these facilities does the institution presently have on hand?

c. What facilities beyond those now on hand would be required in support of the program?

d. How does the institution propose these additional facilities and equipment shall be provided?

14. Budgetary Impact

a. Please indicate the estimated cost of the program for the first four years of its operation, following the format found on p. 5 of this document.

b. If a special legislative appropriation is required to launch the program (as shown in item 4-b of the estimated budget), please provide a statement of the nature of the special budget request, the amount requested, and the reasons a special appropriation is needed. How does the institution plan to continue the program after the initial biennium?

c. If federal or other grant funds are required to launch the program (items 4-c and 4-d), what does the institution propose to do with the program upon termination of the grant?

d. Will the allocation of going-level budget funds in support of the proposed program have an adverse impact on any other institutional programs? If so, which programs and in what ways?

Instructions for Filling Out Summary Table on Page 5

The table, p. 5, is intended to show the budgetary impact resulting from offering the new program. The table should be filled out from the viewpoint of the budgetary unit which will be responsible for the new program. Determine what the budgetary unit will be doing as a result of the new program that it is not now doing in terms of new or additional activities and show what these will cost whether financed and staffed by shifting of assignments within the budgetary unit, reallocation of resources within the institution, special appropriation of the Legislature, or gift, grant, or other funds.

For example, if the program is simply a rearrangement of courses already being offered, drawing on library resources purchased for other programs, and with no requirements for new or additional specialized facilities or equipment and no increase or decrease in students served by the budgetary unit responsible for the program, the budgetary impact is zero and will be so reported in the table.

If the program will require the budgetary unit to offer new courses or additional sections of old courses or other new or additional activities without increase in FTE or other resources assigned the budgetary unit, indicate the FTE of any changed assignment given faculty within the budgetary unit or reallocation of other resources in support of these new courses or activities. If FTE faculty or supporting staff assigned to the budgetary unit must be increased to handle an increased work load occasioned by the new program or to provide added competencies, indicate the total resources required to handle the new activities and workload (e.g., additional sections of existing courses) occasioned by the new program and footnote each item as to (1) how

## SUMMARY OF ESTIMATED COSTS FOR PROPOSED PROGRAM

| | First Year | | Second Year | | Third Year | | Fourth Year | |
|---|---|---|---|---|---|---|---|---|
| Personnel | Amount | FTE | Amount | FTE | Amount | FTE | Amount | FTE |
| a. Faculty | $ | | $ | | $ | | $ | |
| b. Graduate Assistants | $ | | $ | | $ | | $ | |
| c. Support Personnel | $ | | $ | | $ | | $ | |
| d. Fellowships & Scholarships | $ | | $ | | $ | | $ | |
| TOTAL | $ | | $ | | $ | | $ | |
| Percentage of Total from State Funds | % | | % | | % | | % | |
| Other Resources | Amount | | Amount | | Amount | | Amount | |
| a. Library | $ | | $ | | $ | | $ | |
| b. Supplies & Services | $ | | $ | | $ | | $ | |
| c. Movable Equipment | $ | | $ | | $ | | $ | |
| TOTAL | $ | | $ | | $ | | $ | |
| Percentage of Total from State Funds | % | | % | | % | | % | |
| Physical Facilities | Amount | | Amount | | Amount | | Amount | |
| Construction of New Space or Major Renovation | $ | | $ | | $ | | $ | |
| Percentage of Cost from State Funds | % | | % | | % | | | |
| GRAND TOTAL | $ | | $ | | $ | | $ | |
| Percentage of Total from State Funds | % | | % | | % | | | |
| Source of Funds | Amount | | Amount | | Amount | | Amount | |
| a. State Funds--Going-Level Budget | $ | | $ | | $ | | $ | |
| b. State Funds--Special Appropriation | $ | | $ | | $ | | $ | |
| c. Federal Funds | $ | | $ | | $ | | $ | |
| d. Other Grants | $ | | $ | | $ | | $ | |
| e. Fees, sales, etc | $ | | $ | | $ | | $ | |
| f. Other | $ | | $ | | $ | | $ | |
| TOTAL | $ | | $ | | $ | | $ | |

## APPENDIX F

### Manpower Planning and Individual Initiative

The issue arises as to how these manpower projections should be used in educational planning. There are conflicting views.

1. On the one hand, there are those who would have the colleges and universities tailor their production of trained manpower rather closely to the number corresponding with projected job openings in the economy as projected by manpower planners at federal, state, and local levels.

   The process would be disarmingly simple. Let the state and national planners maintain a study of the economy from which they would project the job market in various occupational fields. The colleges and universities would then increase or decrease their production of manpower according to the projected job market openings. If the need appeared to be for an increase in production of trained manpower in given fields, state and national governments would, through their varied resources, provide incentives to colleges and universities and their students, resulting in the production of more trained people in those fields. If it appeared that current production of manpower were greater than necessary, then the state and national governments, through disincentives, would encourage reduction in production of manpower.

   This position is predicated on the proposition that since the colleges and universities are instruments of the people, supported out of tax funds, they ought thus to be responsive to the government's projections of the economy's need for trained manpower.

2. On the other hand, however, there are those who abjure state and national manpower planning as the determinant of the educational programs people enter, the degrees they pursue, or the careers for which they prepare themselves.

   These are matters, they would urge, that should be left to individual choice, within limits of the individual's ability to qualify in open competition for admission into the program of his/her choice. The opportunity for individual self-fulfillment, tempered by social need, is a concept deeply rooted in American tradition.

   Others who also object to the heavy emphasis on the manpower planning concept as the governing force in determining accessibility of graduate education, do so more out of practical considerations than philosophical ones. They have concluded that manpower planning is too unreliable and ineffective to be used as the basis for making external determinations as to the educational careers of students. The National Council on Graduate Schools in the United States, in Special Report No. 9 of Communicator (March 1977) commented in this vein as follows:

> Projections of national needs for science and engineering doctorates in the next decade, including estimates by the NSF and the Bureau of Labor Statistics, vary from 7.6 percent oversupply to 70 percent oversupply - a difference greatly exceeding statistical error. No reason is apparent for the discrepancy, except that there are too many uncontrollable variables. In science disciplines characterized by low doctoral production, such as metallurgy, genetics and toxicology, the need for qualified professionals many soon exceed present training capacity, depending upon unpredictable developments in research and national policies.
>
> We note that the need for graduate archeologists has been stimulated by requirements for environmental impact statements, students of geography have found new tools in surveillance earth satellites, and nutrition research has increasing interest due to concerns for world food production and distribution.

Continuing, the Council says:

> The development of graduate education in the United States during the last two decades was stimulated by the infusion of significant federal support into certain areas of science; one consequence of this action is now perceived by some as an overproduction of Ph.D's in certain disciplines. To correct this situation, federal financial support for graduate training has been curtailed; in some states legislatures amplified the effects of federal actions. A decrease in graduate enrollments has followed. Now reports indicate a possible shortage of scientists in the next decade, and the cycle seems destined to repeat.

Allan Cartter, whose studies of the academic employment market were landmarks, was himself careful to point out that the process of projecting employment markets for the highly educated is far from optimal. He noted the fact that reasonably good information on enrollments, degree trends, and first job placement of Ph.D.'s is available through the efforts of the National Center for Educational Statistics, the National Research Council, and the Council of Graduate Schools; that HEGIS (Higher Education General Information Survey from HEW) gives promise of providing better doctoral enrollment data, differentiated by level; that some professional societies (he mentioned specifically the American Institute of Physics and the several engineering societies) have performed well in providing information concerning supply conditions affecting employment of the highly trained; that information on the demand side is quite limited, though the Carnegie Council on Policy Studies in Higher Education undertook a follow-up study in 1975.

Finally, he called for

> . . . an improved mechanism for monitoring trends affecting the labor market for the highly trained, further testing and refinement of estimates of supply and demand elasticities, and more imaginative econometric modeling to improve our ability to make useful manpower projections.

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> . . . an improved mechanism for monitoring trends affecting the labor market for the highly trained, further testing and refinement of estimates of supply and demand elasticities, and more imaginative econometric modeling to improve our ability to make useful manpower projections.

He cautioned that "While severe imbalances between the supply and demand of Ph.D.'s are a matter of broad public concern, it would be an error to attempt to 'fine-tune' the flow of young men and women through graduate school with only manpower concerns in mind," for the following reasons:

1. First, our knowledge of future needs for specialized talent trained at the doctoral level, as experience indicates, is still rather primitive. Attempts by some central agency to find tune at entry and post-MA continuation points are likely to do more damage than good.

2. Second, a modest oversupply of Ph.D.'s in terms of traditional employment opportunities may be a good thing for both higher education and the economy . . . Competition, and the luxury of being somewhat more selective in hiring and promotion, often make for more efficient services.

3. And very importantly in the area of scholarship, is the argument that learning and knowledge should not be rationed as though they were only marketable 'products'. Doctoral education for many participants is not just an avenue to a job or a career, but a deeply enriching personal experience that is valuable in its own right.

He was, at the same time, careful to point out that institutions should be alert to the need to assure that admissions standards are adequate to give reasonable assurance of the abilities of students admitted.

Smith and Karlesky (The State of Academic Science, 1977) expressed their reservations concerning manpower projections in these terms: "Past manpower projections, for example, have been notoriously inaccurate, and there is little reason to have more confidence in the current projections."

As matters have developed, the shape and character of the distribution of graduate students among the fields of learning have been affected by both the manpower perceptions of planners and by graduate student perceptions of their own interests.

. An illustration of the impact of the federal government on production of trained manpower is effectively noted by Professor Robert Bock of the University of Wisconsin, as follows:

> . . . The dramatic swings of federal priorities from a space, defense, and technology race, through an intense era of production of college teachers to fill that genuine need, toward saving a troubled environment and then to social, economic, and technical fixes for scarce resources, for recession and over-population have moved the University and its students along with the swinging pendulum of national priorities.
>
> As the national priorities changed, so did the funds for graduate training and for the federally funded laboratories, computers and resources needed to provide an effective training environment. These resources were won (and must be continually rewon) in national competition where quality and output are measured closely.

In times of generous funding, more schools could compete, but with today's scarce dollars and the ravages of recent inflation, the weaker programs drop both in support won and in ability to attract students. (Proceedings 16th Annual Meeting Council of Graduate Schools in U.S., December 1976, pp. 53-54.)

Graduate students, for their part, have voted with their feet. To the extent they have been concerned with employment prospects, they have tended to choose majors in what appear to be areas of emerging need, or they seek to broaden their skills through electing minors within a major that appear to have promise of enhancing their attractiveness in the employment market.

It is doubtless true, as Dresch has suggested, that graduate students are in a position to make more pronounced and more rapid adaptive adjustments to shifting demand/supply factors in the market place than are the institutions. Tenure and contract commitments, the limitations of the physical plant, all limit the rapidity with which institutions can make adjustments responsive to the level or composition of student demand.

APPENDIX C

## DEFINITION OF TERMS

Below are definitions of six terms used in the budget note and in documents supplied to the Committee on Graduate Education.

Priorities. The term is used among State System institutions to refer to the differences in importance ascribed to various aims. An institution's "priorities" are expected to control how it spends its energy and funds among competing requests and demands. For example, research must be given a higher value at the universities than at the state colleges. In graduate education, an institution may occasionally select a specific program in which it will seek to be eminent, or it may choose to concentrate on one program rather than another. It will make decisions based on its "priorities," priorities which must be defined and understood and which are rooted in institutional missions and the needs of the state of Oregon. The concept is based on the reality that many things may be important but some are more important than others.

Needs. The term "needs," as used within the State System, refers to a service valued by the state of Oregon for which it would look to higher education. For example, business or industry needs well-trained employees for whom it will look to higher education. The state needs well-informed citizens who are responsible and personally cultivated. Young people need opportunities to prepare themselves for professions. These are some of the needs with which higher education is concerned. The term is generally distinguished from the word "wants," which is likely to refer to the personal and restricted desires of individuals not necessarily related to the public good.

Resources. This term is used within the State System to refer to the total human, physical, and financial "resources" which the institutions have available to devote to the educational process. The term "faculty resources" is commonly employed, as are "physical plant resources," "library resources," and "financial resources."

Employment Needs. This term refers to the needs of employers for trained employees which the State System might provide. It is not used to refer to persons seeking employment.

"Employment needs" and "research needs" are terms used in the budget note to signify that these are two kinds of needs that conceivably might serve as criteria on the basis of which to justify graduate education in Oregon institutions.

Projections of the employment market in various fields are taken by some to be the "employment need" which, they urge, should be the principal determinant in the decision as to how many graduates should be produced by graduate and advanced graduate programs in colleges and universities. The Board has not considered it wise, however, to tie graduate and advanced graduate production to this single criterion for a number of reasons. Rather, it believes that such information should be available to planners and prospective students as one of several factors that should be considered.

"Research needs" refers to the need for research which would justify graduate education. Again, this criterion alone is not sufficient for making determinations as to graduate programs. Graduate education and research are closely allied, but there are reasons for graduate programs that rest not alone upon the research production which will result.

Differential Mission. This term is used to refer to differences in role which the State System institutions are expected to perform--differences in programs, in kinds of students to be served, in regions of the state to be served, in research, and in public service. For example, OSU and UO are expected to perform important research as well as instructional roles; PSU is expected to give emphasis to urban problems; SOSC and EOSC are expected to serve the southern and eastern parts of the state; and OCE is expected to exercise leadership in teacher education.

Access. Access refers to the extent to which a variety of good quality educational programs is available to Oregon citizens in places as convenient as possible and at a price which is not prohibitive. Thus, the Board strives within reason and according to many unremovable limitations to bring its graduate programs as close to the citizens who need these as is possible, in places and at times as convenient as possible. It also tries to hold tuition and fees as low as possible so as not to eliminate capable and well-motivated students through cost increases.

APPENDIX H

Agencies Active in Forecasting PhD Supply/Demand Projections

## Approaches to Forecasting Supply and Demand in Graduate Education

Most projections of supply and demand in graduate education relate to the supply and demand of PhD's. Relatively few studies have sought to deal with the master's degree projections.

In the field of PhD supply/demand projections, a variety of agencies are at work. Principal among these are:

- The National Science Foundation has been active in projecting supply and demand of scientists and engineers, and has projected supply/demand figures to the year 1985. Reports are rendered biennially, the most recent one issued in 1977.

  The National Science Foundation employs the fixed coefficient method of projection, but also has a market response model which takes into account what has happened over the past few years.

- The United States Office of Education makes projections of the supply of PhD's.

- The Carnegie Commission on Higher Education has made studies of supply/demand of PhD's. The study by Allen Cartter, entitled Ph.D.'s and the Academic Labor Market, published by the Commission in 1976, is one of the most noteworthy of the Carnegie series.

  Cartter finds a place in his study of the PhD labor market for both a fixed coefficient model of manpower flow, and what he calls "a more complex recursive model that allows for market responses." The choice between them, he says, "depends partly on one's time frame and partly on whether one wishes to forecast actual behavior or to project current trends to highlight critical points where policy changes may be required."

  The fixed coefficient projections rest upon certain demographic facts such as the population and age groups, and derive applicable ratios such as the percentage of the population that enters college and persists until graduation; and the percentage of the graduates who go on to graduate school and persist until graduation with an appropriate degree.

  Cartter uses the fixed coefficient model in projecting likely ranges of high school graduation and undergraduate enrollment; and a "recursive market-responsive" model in projecting graduate figures. Cartter asserts that at the high school and undergraduate levels the non-economic factors appear to prevail; that is, he says, "while the choice of major in college is reasonably responsive to changes in career opportunities, college entrance and persistence appear to be little affected by prospective opportunities for college-educated personnel." Postbaccalaureate education, on the other hand, appears to be much more market responsive, Cartter avers.

- The National Board on Graduate Education has done several studies of interest in the field of doctoral supply/demand projection, among which are: a 1973 publication entitled Doctoral Manpower Forecast and Policy; a 1974 publication entitled Forecasting the Labor Market: Pitfalls and Policy; and a 1975 publication entitled Outlook and Opportunities for Graduate Education.

- The National Academy of Sciences, at the request of the Secretary of Health, Education and Welfare, has issued a number of reports relating to national needs for biomedical and behavioral research personnel.

- The Bureau of Labor Statistics makes projections of PhD manpower in all fields.

- Various professional and other agencies also make projections related to their specific interests.

## Purposes for Which Projections Are Made

William C. Kelley, Executive Director of the National Research Council's Commission on Human Resources, and long-time student of manpower issues, invites attention to and endorses the motivations for making projections for the future identified by the National Board on Graduate Education.

1. As a tool for evaluating governmental policies.

2. As an early warning system which may reduce adjustment problems in the future.

3. As a diagnostic device to direct attention to market problems which may be beyond the purview of individual decision makers.

Motivations less valid than those above--or invalid--according to the National Board on Graduate Education, are the following:

1. As an aspect of manpower planning with the aim of balancing supply and demand. This, Kelley notes, was considered by the Board to be an illusory goal.

2. To provide information to guidance counselors, faculty, and students. This the Board felt would be difficult of achievement.

3. As the basis for allocating slots in college courses. This was thought by the Board not to be a suitable use for projections, according to Kelley.

In an essay some years ago, Cartter made a perceptive observation on the use of projections when he alluded to the choice one has in deciding whether one wishes to forecast actual behavior or to project current trends to highlight critical points where policy changes may be required. He observed:

> Thus one should draw a careful distinction between projections and predictions; the former may illustrate the consequences of current trends and thus serve to alter the course of events. In a meaningful sense, successful projections may be those that turn out to be poor projections of actual events.

APPENDIX I

EMPLOYMENT DIVISION
Department of Human Resources

## Resident Oregon Labor Force

September 12, 1977

### RESIDENT OREGON LABOR FORCE

| | August 1977 | July 1977 1/ | August 1976 2/ | Change From July 1977 | Change From August 1976 |
|---|---|---|---|---|---|
| Civilian Labor Force 3/ | 1,109,300 | 1,103,400 | 1,084,300 | + 5,900 | +25,000 |
| Unemployment | 83,900 | 87,200 | 90,200 | - 3,300 | - 6,300 |
| Percent of Labor Force | 7.6 | 7.9 | 8.3 | xxx | xxx |
| Seasonally Adjusted Percent | 8.8 | 8.4 | 9.3 | xxx | xxx |
| Total Employment 4/ | 1,025,400 | 1,016,200 | 994,100 | + 9,200 | +31,300 |

1/ Preliminary 2/ Revised 3/ Includes employed and unemployed individuals 16 years and older. Data are adjusted for multiple job-holding and commuting. 4/ Includes nonagricultural wage and salary, self-employed, unpaid family workers, domestics, agriculture and labor disputants.

### NONAGRICULTURAL WAGE & SALARY EMPLOYMENT
(BY PLACE OF WORK)

| | August 1977 | July 1977 | August 1976 | Change From July 1977 | Change From August 1976 |
|---|---|---|---|---|---|
| INDUSTRY | | | | | |
| TOTAL 1/ | 913,300 | 904,500 | 885,000 | + 8,800 | +28,300 |
| Wage & Salary Employment Index (Seasonally Adjusted) (1972=100) | 115.2 | 116.2 | 111.6 | xxx | xxx |
| Total Manufacturing | 211,100 | 205,900 | 209,100 | + 5,200 | + 2,000 |
| Durable Goods | 149,800 | 150,800 | 148,600 | - 1,000 | + 1,200 |
| Lumber & Wood Products | 79,800 | 79,600 | 80,500 | + 200 | - 700 |
| Logging & Sawmills | 41,400 | 41,400 | 42,500 | 0 | - 1,100 |
| Veneer & Plywood | 23,900 | 23,900 | 24,200 | 0 | - 300 |
| Millwork & Structural Wood | 7,600 | 7,400 | 7,100 | + 200 | + 500 |
| Mobile Homes | 2,600 | 2,400 | 2,300 | + 200 | + 300 |
| Other Wood Products | 4,300 | 4,500 | 4,400 | - 200 | - 100 |
| Furniture & Fixtures | 2,600 | 2,600 | 2,800 | 0 | - 200 |
| Stone, Clay, Glass & Concrete Prod. | 4,000 | 4,000 | 4,000 | 0 | 0 |
| Primary Metals | 8,700 | 9,900 | 9,900 | - 1,200 | - 1,200 |
| Blast Furnaces, Iron & Steel Found. | 5,400 | 5,400 | 5,200 | 0 | + 200 |
| Nonferrous Metals | 3,300 | 4,500 | 4,700 | - 1,200 | - 1,400 |
| Fabricated Metals | 11,800 | 11,800 | 10,600 | 0 | + 1,200 |
| Fabricated Structural Metal | 5,400 | 5,400 | 4,800 | 0 | + 600 |
| Other Fabricated Metals | 6,400 | 6,400 | 5,800 | 0 | + 600 |
| Machinery | 13,000 | 12,800 | 11,900 | + 200 | + 1,100 |
| Electrical Equipment & Supplies | 4,000 | 3,900 | 3,900 | + 100 | + 100 |
| Transportation Equipment | 9,400 | 9,600 | 9,800 | - 200 | - 400 |
| Instruments & Related Products | 14,500 | 14,600 | 13,000 | - 100 | + 1,500 |
| Miscellaneous Manufacturing | 2,000 | 2,000 | 2,200 | 0 | - 200 |
| Nondurable Goods | 61,300 | 55,100 | 60,500 | + 6,200 | + 800 |
| Food & Kindred Products | 32,000 | 25,900 | 31,400 | + 6,100 | + 600 |
| Canning & Preserving | 20,600 | 14,700 | 20,200 | + 5,900 | + 400 |
| Other Food Products | 11,400 | 11,200 | 11,200 | + 200 | + 200 |
| Textile Mill Products | 2,200 | 2,200 | 2,200 | 0 | 0 |
| Apparel | 3,200 | 3,200 | 3,700 | 0 | - 500 |
| Paper & Allied Products | 10,300 | 10,300 | 10,300 | 0 | 0 |
| Printing & Publishing | 8,600 | 8,500 | 9,000 | + 100 | - 400 |
| Chemicals & Allied Products | 2,200 | 2,200 | 2,300 | 0 | - 100 |
| Petroleum Refining | 500 | 500 | 500 | 0 | 0 |
| Rubber & Plastic Products | 2,100 | 2,100 | 1,900 | 0 | + 200 |
| Leather Products | 200 | 200 | 200 | 0 | 0 |

## NONAGRICULTURAL WAGE & SALARY EMPLOYMENT
(BY PLACE OF WORK)

| | August 1977 | July 1977 | August 1976 | Change From July 1977 | Change From August 1976 |
|---|---|---|---|---|---|
| Total Nonmanufacturing | 702,200 | 698,600 | 675,900 | + 3,600 | +26,300 |
| Mining & Quarrying | 1,600 | 1,600 | 1,600 | 0 | 0 |
| Contract Construction | 39,700 | 39,600 | 40,500 | + 100 | - 800 |
| Transportation, Comm. & Utilities | 53,900 | 53,900 | 51,600 | 0 | + 2,300 |
| Transportation | 32,700 | 32,800 | 31,400 | - 100 | + 1,300 |
| Railroad | 7,700 | 7,700 | 7,600 | 0 | + 100 |
| Trucking & Warehousing | 16,800 | 16,700 | 15,600 | + 100 | + 1,200 |
| Other Transportation | 8,200 | 8,400 | 8,200 | - 200 | 0 |
| Communications | 13,300 | 13,300 | 12,700 | 0 | + 600 |
| Utilities | 7,900 | 7,300 | 7,500 | + 100 | + 400 |
| Trade | 221,500 | 219,200 | 213,600 | + 2,300 | + 7,900 |
| Wholesale Trade | 57,600 | 56,900 | 56,500 | + 700 | + 1,100 |
| Durable Goods | 36,200 | 36,200 | 34,900 | 0 | + 1,300 |
| Nondurable Goods | 21,400 | 20,700 | 21,600 | + 700 | - 200 |
| Retail Trade | 163,900 | 162,300 | 157,100 | + 1,600 | + 6,800 |
| General Merchandise | 25,200 | 25,200 | 25,300 | 0 | - 100 |
| Food Stores | 21,400 | 21,200 | 20,300 | + 200 | + 1,100 |
| Auto Dealers & Service Stations | 24,900 | 24,900 | 24,400 | 0 | + 500 |
| Other Retail Trade | 92,400 | 91,000 | 87,100 | + 1,400 | + 5,300 |
| Finance, Ins. & Real Estate | 56,800 | 56,400 | 52,800 | + 400 | + 4,000 |
| Banking & Credit Agencies | 20,700 | 20,600 | 19,500 | + 100 | + 1,200 |
| Other Finance, Ins. & Real Estate | 36,100 | 35,800 | 33,300 | + 300 | + 2,800 |
| Services | 158,000 | 157,800 | 150,300 | + 200 | + 7,700 |
| Hotels & Personal Service | 22,000 | 22,100 | 21,400 | - 100 | + 600 |
| Health Services | 53,300 | 53,300 | 49,900 | 0 | + 3,400 |
| Other Services | 82,700 | 82,400 | 79,000 | + 300 | + 3,700 |
| Government | 170,700 | 170,100 | 165,500 | + 600 | + 5,200 |
| Federal Government | 30,400 | 29,400 | 28,900 | + 1,000 | + 1,500 |
| State Government | 48,400 | 48,200 | 48,900 | + 200 | - 500 |
| Education | 19,000 | 19,400 | 20,000 | - 400 | - 1,000 |
| Other State | 29,400 | 28,800 | 28,900 | + 600 | + 500 |
| Local Government | 91,900 | 92,500 | 87,700 | - 600 | + 4,200 |
| Education | 49,000 | 49,600 | 48,900 | - 600 | + 100 |
| Other Local | 42,900 | 42,900 | 38,800 | 0 | + 4,100 |
| Labor-Management Disputes | 2,200 | 800 | 700 | + 1,400 | + 1,500 |

1/ Includes full and part-time nonfarm wage and salary workers in pay periods including the 12th of the month. Proprietors, self-employed, private household workers and armed forces excluded. NOTE: Estimated in cooperation with the U. S. Bureau of Labor Statistics and Employment and Training Administration. All data are based on the 1972 Standard Industrial Classification (SIC) codes.

Source: State Labor Summary for the State of Oregon, State of Oregon, Employment Division, Department of Human Resources, January, 1977

APPENDIX J

MASTER'S AND DOCTORAL DEGREES CONFERRED IN OREGON
BY INDEPENDENT AND STATE SYSTEM COLLEGES AND UNIVERSITIES
IN NUMBERS AND AS A PERCENTAGE OF TOTAL DEGREES CONFERRED
(Selected Years 1966-67 - 1976-77)

| | Independent | | | | State System | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | | D | | M | | D | | M | D |
| Year | # | % | # | % | # | % | # | % | # | # |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 1966-67 | 204 | 9.9 | 5 | 1.9 | 1864 | 90.1 | 258 | 98.1 | 2068 | 263 |
| 1969-70 | 225 | 7.7 | 12 | 2.7 | 2700 | 92.3 | 440 | 97.3 | 2925 | 452 |
| 1972-73 | 375 | 12.9 | 12 | 2.3 | 2530 | 87.1 | 504 | 97.7 | 2905 | 516 |
| 1975-76 | 520 | 17.1 | 8 | 1.5 | 2529 | 82.9 | 532 | 98.5 | 3049 | 540 |
| 1976-77 | 624 | 19.2 | 13 | 2.3 | 2625 | 80.8 | 550 | 97.7 | 3249 | 563 |

Lewis and Clark College and the University of Portland have been the largest producers of master's degrees among Oregon's independent colleges and universities, and the University of Portland has been the largest producer of doctoral degrees. Master's degree production has been concentrated in the field of education, with over half of the degrees awarded in recent years in this field. The second area of importance has been business administration. Doctoral degrees have been concentrated in education and psychology. However, this will not be true in the future because of the discontinuance of the University of Portland's doctoral program in psychology.

Oregon Graduate Center conferred one doctoral degree in physics in 1974-75, one in 1975-76, and three in 1976-77.

MASTER'S AND DOCTORAL DEGREES AWARDED BY STATE SYSTEM INSTITUTIONS IN SELECTED YEARS
(CATEGORIZED BY TWO-DIGIT HEGIS CODE)

| | UO | | OSU | | PSU | | OCE | | SOSC | | EOSC | | UOHSC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | D | M | D | M | D | M | D | M | D | M | D | M | D |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 0100 AGRICULTURE | | | | | | | | | | | | | | |
| 1966-67 | | | 51 | 14 | | | | | | | | | | |
| 1969-70 | | | 56 | 37 | | | | | | | | | | |
| 1972-73 | | | 55 | 36 | | | | | | | | | | |
| 1976-77 | | | 62 | 34 | | | | | | | | | | |
| 0114 FORESTRY | | | | | | | | | | | | | | |
| 1966-67 | | | 15 | 2 | | | | | | | | | | |
| 1969-70 | | | 13 | 2 | | | | | | | | | | |
| 1972-73 | | | 22 | 7 | | | | | | | | | | |
| 1976-77 | | | 24 | 2 | | | | | | | | | | |
| 0200 ARCHITECTURE | | | | | | | | | | | | | | |
| 1966-67 | 5 | | | | | | | | | | | | | |
| 1969-70 | 11 | | | | | | | | | | | | | |
| 1972-73 | 27 | | | | | | | | | | | | | |
| 1976-77 | 34 | | | | | | | | | | | | | |
| 0300 AREA STUDIES | | | | | | | | | | | | | | |
| 1966-67 | | | | | | | | | | | | | | |
| 1969-70 | | | | | | | | | | | | | | |
| 1972-73 | | | | | | | | | | | | | | |
| 1976-77 | 3 | | | | | | | | | | | | | |
| 0400 BIOLOGICAL SCIENCES | | | | | | | | | | | | | | |
| 1966-67 | 32 | 9 | 39 | 22 | 4 | | | | | | | | 6 | 7 |
| 1969-70 | 32 | 3 | 37 | 37 | 10 | | | | | | | | 1 | 8 |
| 1972-73 | 11 | 12 | 33 | 35 | 16 | | | | | | | | 1 | 7 |
| 1976-77 | 15 | 6 | 25 | 27 | 16 | | | | | | | | 4 | 6 |

| | UO | | OSU | | PSU | | OCE | | SOSC | | EOSC | | UOHSC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | D | M | D | M | D | M | D | M | D | M | D | M | D |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 0500 BUSINESS | | | | | | | | | | | | | | |
| 1966-67 | 74 | 12 | 13 | | 9 | | | | | | | | | |
| 1969-70 | 94 | 8 | 46 | | 15 | | | | | | | | | |
| 1972-73 | 78 | 9 | 53 | | 29 | | | | | | | | | |
| 1976-77 | 162 | 7 | 47 | | 71 | | | | | | | | | |
| 0600 COMMUNICATIONS | | | | | | | | | | | | | | |
| 1966-67 | 15 | | | | | | | | | | | | | |
| 1969-70 | 25 | | | | | | | | | | | | | |
| 1972-73 | 17 | | | | | | | | | | | | | |
| 1976-77 | 15 | | | | | | | | | | | | | |
| 0700 COMPUTER SCIENCE | | | | | | | | | | | | | | |
| 1966-67 | | | | | | | | | | | | | | |
| 1969-70 | | | | | | | | | | | | | | |
| 1972-73 | 12 | | 4 | | | | | | | | | | | |
| 1976-77 | 19 | | 6 | | | | | | | | | | | |
| 0800 EDUCATION | | | | | | | | | | | | | | |
| 1966-67 | 360 | 55 | 179 | 8 | 67 | | 89 | | 79 | | 41 | | | |
| 1969-70 | 526 | 121 | 230 | 20 | 211 | | 146 | | 121 | | 55 | | | |
| 1972-73 | 394 | 134 | 244 | 45 | 234 | | 210 | | 93 | | 27 | | | |
| 1976-77 | 427 | 93 | 184 | 28 | 299 | | 183 | | 117 | | 10 | | | |
| 0900 ENGINEERING | | | | | | | | | | | | | | |
| 1966-67 | | | 41 | 11 | 1 | | | | | | | | | |
| 1969-70 | | | 48 | 13 | 3 | | | | | | | | | |
| 1972-73 | | | 62 | 15 | 4 | | | | | | | | | |
| 1976-77 | | | 90 | 10 | 5 | | | | | | | | | |

| | UO | | OSU | | PSU | | OCE | | SOSC | | EOSC | | UOHSC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | D | M | D | M | D | M | D | M | D | M | D | M | D |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1000 FINE ARTS | | | | | | | | | | | | | | |
| 1966-67 | 47 | | | | 9 | | | | | | | | | |
| 1969-70 | 78 | 3 | | | 11 | | | | | | | | | |
| 1972-73 | 59 | 6 | | | 16 | | | | | | | | | |
| 1976-77 | 64 | 10 | | | 12 | | | | | | | | | |
| 1100 FOREIGN LANGUAGES | | | | | | | | | | | | | | |
| 1966-67 | 21 | 4 | | | 4 | | | | | | | | | |
| 1969-70 | 41 | 5 | | | 5 | | | | | | | | | |
| 1972-73 | 19 | 4 | | | 10 | | | | | | | | | |
| 1976-77 | 15 | 3 | | | 5 | | | | | | | | | |
| 1200 HEALTH PROFESSIONS | | | | | | | | | | | | | | |
| 1966-67 | | | 2 | 2 | | | 8 | | | | | | 10 | |
| 1969-70 | | | 4 | 2 | | | 12 | | | | | | 6 | |
| 1972-73 | | | 4 | | | | 17 | | | | | | 11 | |
| 1976-77 | 14 | 1 | 4 | 1 | | | 17 | | | | | | 22 | |
| 1300 HOME ECONOMICS | | | | | | | | | | | | | | |
| 1966-67 | | | 11 | 1 | | | | | | | | | | |
| 1969-70 | | | 20 | 1 | | | | | | | | | | |
| 1972-73 | | | 13 | - | | | | | | | | | | |
| 1976-77 | | | 14 | 4 | | | | | | | | | | |

| | UO | | OSU | | PSU | | OCE | | SOSC | | EOSC | | UOHSC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | D | M | D | M | D | M | D | M | D | M | D | M | D |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1500 LETTERS | | | | | | | | | | | | | | |
| 1966-67 | 64 | 16 | | | 8 | | | | | | | | | |
| 1969-70 | 93 | 42 | | | 44 | | | | | | | | | |
| 1972-73 | 66 | 60 | | | 36 | | | | | | | | | |
| 1976-77 | 52 | 33 | | | 27 | | | | | | | | | |
| 1600 LIBRARY SCIENCES | | | | | | | | | | | | | | |
| 1966-67 | 27 | | | | | | | | | | | | | |
| 1969-70 | 90 | | | | | | | | | | | | | |
| 1972-73 | 73 | | | | | | | | | | | | | |
| 1976-77 | 91 | | | | | | | | | | | | | |
| 1700 MATHEMATICS | | | | | | | | | | | | | | |
| 1966-67 | 33 | 8 | 27 | 5 | 4 | | | | | | | | | |
| 1969-70 | 49 | 15 | 16 | 13 | 14 | | | | | | | | | |
| 1972-73 | 26 | 10 | 37 | 11 | 24 | | | | | | | | | |
| 1976-77 | 13 | 4 | 11 | 5 | 12 | | | | | | | | | |
| 1900 PHYSICAL SCIENCE | | | | | | | | | | | | | | |
| 1966-67 | 19 | 15 | 64 | 26 | 1 | | | | | | | | | |
| 1969-70 | 30 | 25 | 52 | 26 | 3 | | | | | | | | | |
| 1972-73 | 22 | 21 | 44 | 23 | 7 | | | | | | | | | |
| 1976-77 | 19 | 28 | 58 | 34 | 10 | | | | | | | | | |
| 2000 PSYCHOLOGY | | | | | | | | | | | | | | |
| 1966-67 | 16 | 19 | | | | | | | | | | | 3 | |
| 1969-70 | 22 | 9 | | | 2 | | | | | | | | | |
| 1972-73 | 15 | 17 | | | 5 | | | | | | | | | 2 |
| 1976-77 | 14 | 15 | | | 10 | | | | | | | | | |

| | UO | | OSU | | PSU | | OCE | | SOSC | | EOSC | | UOHSC | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | D | M | D | M | D | M | D | M | D | M | D | M | D |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| **2100 PUBLIC AFFAIRS** | | | | | | | | | | | | | | |
| 1966-67 | 9 | | - | | 27 | | | | | | | | | |
| 1969-70 | 29 | 3 | | | 52 | | | | | | | | | |
| 1972-73 | 23 | 2 | | | 75 | | | | | | | | | |
| 1976-77 | 81 | 1 | | | 74 | | 15 | | | | | | | |
| **2200 SOCIAL SCIENCES** | | | | | | | | | | | | | | |
| 1966-67 | 76 | 27 | | | 19 | | | | | | | | | |
| 1969-70 | 82 | 50 | | | 55 | | | | | | | | | |
| 1972-73 | 64 | 53 | | | 57 | | | | | | | | | |
| 1976-77 | 42 | 32 | | | 71 | 7 | | | | | | | | |
| **4900 INTERDISCIPLINARY STUDIES** | | | | | | | | | | | | | | |
| 1966-67 | 105 | | 138 | 2 | 20 | | | | | | | | | |
| 1969-70 | 121 | | 79 | 5 | 17 | | | | | | | | | |
| 1972-73 | 136 | | 38 | 3 | 19 | 1 | | | | | | | | |
| 1976-77 | 89 | | 15 | 3 | 6 | 4 | | | 6 | | | | | |

APPENDIX L

DISCIPLINE COST AND CREDIT HOUR PRODUCTION--FALL TERM 1976

Total Institutional Costs for All Programs

| Line | Col. | INSTITUTION TOTALS | UO | OSU | PSU | OCE | SOSC | EOSC | OIT |
|---|---|---|---|---|---|---|---|---|---|
| | | **Student Credit Hours** | | | | | | | |
| 14 | 7 | Lower Division | 97,157 | 141,585 | 73,800 | 23,878 | 38,851 | 14,528 | 24,674 |
| 14 | 8 | Upper Division | 58,000 | 57,268 | 49,918 | 15,053 | 13,479 | 6,956 | 6,719 |
| 14 | 9 | 400g/G | 36,778 | 27,718 | 19,970 | 5,381 | 6,168 | 47 | |
| 14 | 11 | Graduate | 28,108 | 12,853 | 10,546 | 2,575 | 375 | 61 | |
| | | **Direct Instruction F.T.E.** | | | | | | | |
| 72 | 7 | Lower Division | 231.28 | 313.47 | 194.11 | 71.14 | 111.57 | 40.77 | 106.41 |
| 72 | 8 | Upper Division | 209.80 | 227.14 | 157.65 | 69.75 | 60.92 | 38.72 | 32.76 |
| 72 | 9 | 400g/G | 170.91 | 123.15 | 90.48 | 24.68 | 29.07 | .40 | |
| 72 | 11 | Graduate | 188.39 | 109.16 | 82.44 | 8.44 | 2.63 | 1.26 | |
| | | **Faculty Salary Cost** | | | | | | | |
| 4 | 7 | Lower Division | $1,174,484 | $1,708,485 | $927,573 | $405,404 | $615,060 | $229,175 | $638,424 |
| 4 | 8 | Upper Division | $1,224,768 | $1,327,084 | $961,485 | $406,606 | $349,546 | $200,491 | $211,175 |
| 4 | 9 | 400g/G | $1,118,256 | $795,620 | $598,970 | $152,891 | $177,232 | $2,607 | |
| 4 | 11 | Graduate | $1,378,970 | $744,029 | $562,667 | $53,681 | $16,921 | $10,175 | |
| | | **Credit Hours/F.T.E.** | | | | | | | |
| 66 | 7 | Lower Division | 420.07 | 451.66 | 380.18 | 335.64 | 348.19 | 356.30 | 231.85 |
| 66 | 8 | Upper Division | 276.44 | 252.12 | 316.63 | 215.81 | 221.23 | 179.64 | 205.09 |
| 66 | 9 | 400g/G | 215.18 | 225.06 | 220.68 | 218.03 | 212.12 | 116.04 | |
| 66 | 11 | Graduate | 149.20 | 117.73 | 127.91 | 304.90 | 142.25 | 48.41 | |
| | | **Salary Cost/Credit Hour** | | | | | | | |
| 65 | 7 | Lower Division | $12.08 | $12.06 | $12.56 | $16.97 | $15.83 | $15.77 | $25.87 |
| 65 | 8 | Upper Division | $21.11 | $23.18 | $19.26 | $27.01 | $25.93 | $33.13 | $31.42 |
| 65 | 9 | 400g/G | $30.40 | $28.70 | $29.99 | $28.41 | $28.73 | $55.47 | |
| 65 | 11 | Graduate | $49.05 | $57.88 | $53.35 | $20.84 | $45.12 | $166.80 | |

Institutional Costs for Professional Teacher Education Courses[1]--Fall Term 1976

| Line | Col. | EDUCATION | UO | OSU | PSU | OCE | SOSC | EOSC | OIT |
|---|---|---|---|---|---|---|---|---|---|
| | | Student Credit Hours | | | | | | | |
| 14 | 7 | Lower Division | 9,588 | 11,449 | 6,482 | 2,234 | 2,502 | 1,155 | 1,681 |
| 14 | 8 | Upper Division | 11,177 | 8,952 | 6,156 | 7,344 | 3,729 | 2,619 | 108 |
| 14 | 9 | 400g/G | 8,318 | 2,305 | 2,230 | 2,247 | 1,153 | 25 | |
| 14 | 11 | Graduate | 6,198 | 1,218 | 3,186 | 1,944 | 254 | 47 | |
| | | Direct Instruction F.T.E. | | | | | | | |
| 72 | 7 | Lower Division | 20.67 | 39.33 | 17.20 | 11.91 | 12.41 | 4.94 | 7.89 |
| 72 | 8 | Upper Division | 33.10 | 39.49 | 21.80 | 36.97 | 16.98 | 9.99 | .71 |
| 72 | 9 | 400g/G | 27.27 | 10.88 | 5.71 | 9.54 | 5.97 | .20 | |
| 72 | 11 | Graduate | 40.04 | 11.38 | 18.12 | 5.25 | 1.34 | .99 | |
| | | Faculty Salary Costs | | | | | | | |
| 4 | 7 | Lower Division | $91,725 | $214,195 | $92,642 | $61,336 | $69,668 | $27,416 | $45,065 |
| 4 | 8 | Upper Division | $173,551 | $246,918 | $137,138 | $210,443 | $101,459 | $65,034 | $5,465 |
| 4 | 9 | 400g/G | $170,034 | $64,703 | $34,136 | $57,165 | $36,073 | $1,290 | |
| 4 | 11 | Graduate | $280,960 | $73,394 | $125,681 | $32,671 | $8,575 | $8,416 | |
| | | Credit Hours/F.T.E. | | | | | | | |
| 66 | 7 | Lower Division | 463.70 | 291.08 | 376.79 | 202.75 | 201.61 | 233.61 | 213.05 |
| 66 | 8 | Upper Division | 337.60 | 226.66 | 282.34 | 198.65 | 219.54 | 262.00 | 152.11 |
| 66 | 9 | 400g/G | 304.98 | 211.81 | 389.88 | 235.53 | 192.89 | 125.00 | |
| 66 | 11 | Graduate | 154.76 | 107.00 | 175.75 | 370.29 | 188.16 | 47.47 | |
| | | Salary Cost/F.T.E. | | | | | | | |
| 65 | 7 | Lower Division | $9.56 | $18.70 | $14.29 | $27.45 | $27.84 | $23.73 | $26.80 |
| 65 | 8 | Upper Division | $15.52 | $27.58 | $22.27 | $28.65 | $27.20 | $24.83 | $50.60 |
| 65 | 9 | 400g/G | $20.44 | $28.07 | $15.30 | $25.44 | $31.28 | $51.63 | |
| 65 | 11 | Graduate | $45.33 | $60.25 | $39.44 | $16.81 | $33.76 | $179.07 | |

[1]Includes both professional and service courses in Health and Physical Education.